

Appl. No. : 10/642,980
Filed : August 18, 2003

AMENDMENTS TO THE CLAIMS

Please amend Claims 10, 12, 16, 17, 22, 23, and 27 and add new Claims 28-40 as indicated below.

Please cancel Claims 1-9, 13-15, 19-21, and 24-26 as indicated below.

A complete listing of all claims is presented below with insertions underlined (e.g., insertion), and deletions struckthrough or in double brackets (e.g., ~~deletion~~ or [[deletion]]).

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Canceled)
8. (Canceled)
9. (Canceled)

10. (Currently Amended) ~~The thermoelectric power generation system of Claim 1, A~~ thermoelectric power generation system comprising:

a plurality of thermoelectric elements forming an assembly having a cooler side and a hotter side during operation, wherein a working media collects waste heat from the colder side of at least some of the plurality of thermoelectric elements, and wherein after collecting said waste heat, the working media is further heated and then dispenses at least a portion of its heat to said hotter side of at least some of the plurality of thermoelectric elements, thereby generating power with at least some of the plurality of thermoelectric elements, wherein at least some of the plurality of thermoelectric elements are configured to allow the working media to pass through them; and

at least one electrical system that transfers said power from said assembly.

11. (Original) The thermoelectric power generation system of Claim 10, wherein at least some of the plurality of thermoelectric elements are porous.

12. (Currently Amended) ~~The thermoelectric power generation system of Claim 1, A~~ thermoelectric power generation system comprising:

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a plurality of thermoelectric elements forming an assembly having a cooler side and a hotter side during operation, wherein the working media collects waste heat from the colder side of at least some of the plurality of thermoelectric elements, and wherein after collecting said waste heat, the working media is further heated and then dispenses at least a portion of its heat to said hotter side of at least some of the plurality of thermoelectric elements, thereby generating power with at least some of the plurality of thermoelectric elements, wherein at least some of the plurality of thermoelectric elements are configured to allow convective heat transport by the working media in the direction of the hotter side of the assembly; and

at least one electrical system that transfers said power from said assembly.

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Currently Amended) ~~The thermoelectric power generation system of Claim 15, A~~
thermoelectric power generation system comprising:

a plurality of thermoelectric elements forming an assembly having a cooler side and a hotter side during operation, wherein the working media collects waste heat from the colder side of at least some of the plurality of thermoelectric elements, and wherein after collecting said waste heat, the working media is further heated and then dispenses at least a portion of its heat to said hotter side of at least some of the plurality of thermoelectric elements, thereby generating power with at least some of the plurality of thermoelectric elements;

a plurality of heat exchangers, wherein at least some the heat exchangers are in thermal communication with at least some of the thermoelectric elements and wherein at least some of the heat exchangers provide thermal isolation in a direction of working media movement; and

at least one electrical system that transfers said power from said assembly.

17. (Currently Amended) ~~The thermoelectric power generation system of Claim 1, A~~
thermoelectric power generation system comprising:

a plurality of thermoelectric elements forming an assembly having a cooler side and a hotter side during operation, wherein a working media collects waste heat from the colder side of at least some of the plurality of thermoelectric elements, and wherein after collecting said waste heat, the working media is further heated and then dispenses at least a portion of its heat to said hotter side of at least some of the plurality of thermoelectric elements, thereby generating power with at least some of the plurality of thermoelectric elements, wherein at least one of the plurality of thermoelectric elements are configured to allow convective heat transport by the working media in the direction of the hotter side of the assembly, and at least a plurality of others of the thermoelectric elements are configured to provide thermal isolation in a direction of working media movement; and at least one electrical system that transfers said power from said assembly.

18. (Original) The thermoelectric power generation system of Claim 17, wherein the working media is a working fluid, and wherein the working fluid convects heat through the at least one of the plurality of thermoelectric elements, and is thereby heated.

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Currently Amended) ~~The method of Claim 19, further comprising~~ A method of generating power with a thermoelectric power generation system, the method comprising the steps of:

moving a working media to thermally interact with a plurality of thermoelectric elements forming an assembly having a cooler side and a hotter side during operation;

transferring heat into the working media from the cooler side of at least some of the plurality of thermoelectric elements;

adding further heat to the working media;

dispensing heat from the working media to the hotter side of at least some of the plurality of thermoelectric elements, to thereby generate power with at least some of the plurality of thermoelectric elements; and

passing the working media through at least some of the plurality of thermoelectric elements.

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23. (Currently Amended) ~~The method of Claim 19, further comprising~~ A method of generating power with a thermoelectric power generation system, the method comprising the steps of:

moving a working media to thermally interact with a plurality of thermoelectric elements forming an assembly having a cooler side and a hotter side during operation;

transferring heat into the working media from the cooler side of at least some of the plurality of thermoelectric elements;

adding further heat to the working media;

dispensing heat from the working media to the hotter side of at least some of the plurality of thermoelectric elements, to thereby generate power with at least some of the plurality of thermoelectric elements; and

convecting heat with the working media in the direction of the hotter side of at least one of the thermoelectric elements.

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Currently Amended) ~~The method of Claim 19, further comprising~~ A method of generating power with a thermoelectric power generation system, the method comprising the steps of:

moving a working media to thermally interact with a plurality of thermoelectric elements forming an assembly having a cooler side and a hotter side during operation;

transferring heat into the working media from the cooler side of at least some of the plurality of thermoelectric elements;

adding further heat to the working media;

dispensing heat from the working media to the hotter side of at least some of the plurality of thermoelectric elements, to thereby generate power with at least some of the plurality of thermoelectric elements; and

thermally isolating at least some of the thermoelectric elements in a direction of working media movement.

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28. (New) The thermoelectric power system of Claim 10, wherein the working media receives heat from a heat source.

29. (New) The thermoelectric power system of Claim 28, wherein the heat source is solar.

30. (New) The thermoelectric power system of Claim 28, wherein the heat source is a radioactive isotope.

31. (New) The thermoelectric power system of Claim 28, wherein the heat source is combustion.

32. (New) The thermoelectric power system of Claim 10, wherein the working media is heated by combusting a portion of the working media.

33. (New) The thermoelectric power system of Claim 10, wherein the working media is a fluid.

34. (New) The thermoelectric power system of Claim 33, wherein the working media is a combination of at least one fluid and at least one solid.

35. (New) The thermoelectric power system of Claim 10, wherein the working media is a solid.

36. (New) The thermoelectric power system of Claim 10, further comprising a power generation controller.

37. (New) The thermoelectric power system of Claim 33, wherein the power generation controller controls the movement of the working media.

38. (New) The thermoelectric power system of Claim 12, wherein at least some of the plurality of thermoelectric elements are configured to allow the working media to pass through them.

39. (New) The method of Claim 22, wherein adding further heat to the working media includes providing heat from a heat source selected from a group consisting of: solar, radioactive isotope, combustion, and combusting a portion of the working media.

40. (New) The method of Claim 23, wherein convecting heat with the working media in the direction of the hotter side of at least one of the thermoelectric elements includes passing the working media through the at least one of the thermoelectric elements.